

Announcement SoSe 2022

Lecture in Mathematical Finance

Quantitative Risk Management

Prof. Dr. Blanka Horvath

- Area: / Modulnr.:** Insurance Mathematics / MA5415
- Course Structure:** Lecture: 2h Exercises: 1h
- Content:**
- I) Some statistical tools: Quantile functions, Empirical distribution and quantile function
 - II) Risk measures: Axiomatic approach, Examples
 - III) Standard methods for market risk: Variance-covariance method, Historical simulation, Monte Carlo method
 - IV) Statistical methods in extreme value theory: Extreme value distributions, Domains of attraction, Statistical estimation of extremes
 - V) Copulas
 - VI) Applications of Risk Measures in Machine Learning
- Audience:** MSc Mathematics, Mathematical Finance and Actuarial Science
- Prerequisite:** MA2003 Measure and Integration, MA2402 Basic Statistics, MA2409 Probability Theory
- Literature:**
- McNeil, A.J., Frey, R. and Embrechts, P. (2005):** Quantitative Risk Management: Concepts, Techniques and Tools, Princeton University Press.
 - Carmona, R. (2004):** Statistical Analysis of Financial Data in S-Plus, Springer, New York.
 - Glasserman, P. (2004):** Monte Carlo Methods in Financial Engineering, Springer, New York.
 - Mai, J.-F. and Scherer, M. (2012):** Simulating Copulas: Stochastic Models, Sampling Algorithms and Applications, Imperial College Press.
 - Föllmer, H and Schied, A. (2016):** Stochastic Finance, De Gruyter.
 - Czado, C. and Schmidt, T. (2011):** Mathematische Statistik, Springer.
- Certificate:** Exam, 5 ECTS
- Location and Time:** see TUMonline